Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Request by City of Seattle for Waiver of the Commission's Rules to Deploy a 700 MHz Public Safety Interoperable Broadband Network That Can Be Integrated into the Public-Private Partnership	)	PS Docket No. 06-229

REQUEST FOR WAIVER

Pursuant to Section 1.925(b) of the Commission's rules, the City of Seattle respectfully requests that the Federal Communications Commission ("FCC/Commission") grant a waiver of its 700 MHz public safety early deployment rules to enable the construction and operation of a 700 MHz interoperable public safety broadband network in the City of Seattle and eventually the Seattle Urban Area (King, Snohomish and Pierce Counties as designated by the Department of Homeland Security). The requested waiver will serve the public interest by improving communications for first responders today without sacrificing any of the policy goals the Commission is seeking to achieve in its 700 MHz rulemaking.

The City of Seattle has identified public safety interoperable broadband services as a priority and is prepared to make the capital investment necessary to deploy a network in the City as quickly as possible in the 700 MHz public safety broadband spectrum. This network would later be extended beyond the City limits to serve other jurisdictions in the Seattle Urban Area. As demonstrated below, our stand-alone network will meet the technical specifications the FCC

has proposed in the *Third Further Notice*[1] and the September 4, 2009 National Public Safety Telecommunications Council ("NPSTC") 700 MHz Broadband Task Force Report and Recommendations ("NPSTC Recommendations")[2] and can be integrated into a future interoperable public safety broadband network. The City of Seattle asks the Commission to act quickly on this request for waiver. Grant of the waiver will enable rapid public safety broadband deployment, while the network contemplated in the above-captioned proceeding remains years from deployment.

I. INTRODUCTION

Over the last few years, the Commission has taken significant steps to advance nationwide interoperable public safety broadband communications. Despite these efforts, Auction 73 did not result in a winning bidder for the Upper 700 MHz D Block license. Yet there is an urgent need to provide wireless broadband to our first responders. The City of Seattle stands ready to commit the resources to put this critical 700 MHz spectrum to use and deploy interoperable public safety broadband systems that could later be integrated into a nationwide public safety broadband solution.

Today there is overwhelming unanimity among all public safety agencies and associations that the technology of choice should be LTE, which is an open standard technology that has been adopted by the major global commercial mobile service providers for deployment in the United States within the next year. In addition, APCO International, the National Emergency Numbering Association, the Public Safety Spectrum Trust ("PSST"), and NPSTC

[1] *See Service Rules for the 698-746, 747-762 and 777-792 MHz Bands; Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band,* WT Docket No. 06-150 and PS Docket No. 06-229, *Third Further Notice of Proposed Rulemaking,* FCC 08-230 (rel. Sept, 25, 2008) ("*Third Further Notice*").

[2] *See* NPSTC 700 MHz Broadband Task Force Report and Recommendations, (Sept. 4, 2009)("NPSTC Recommendations").

have all publicly endorsed LTE for use in the public safety 700 MHz spectrum space. Likewise, the overwhelming majority of the 13 filed petitions for waiver that the Commission has sought comment on that also seek the authority to deploy public safety broadband systems on a local or regional basis in the 700 MHz public safety broadband spectrum have declared that LTE is the technology of choice.[3] Thus, the Commission should seize this opportunity to harness precious resources by modifying its current 700 MHz early build-out rules to enable early deployments. The City of Seattle will work with the PSST and other waiver-requesting cities, counties and regions to deploy wireless broadband technologies capable of interoperating together.

In the *Second Report & Order*, the Commission recognized the need to balance two important goals as it crafted the 700 MHz public safety broadband policy: (1) foster a public-private solution to develop nationwide interoperable public safety broadband communications; and (2) enable jurisdictions with available resources to deploy public safety broadband systems on an accelerated basis in some circumstances.[4] As to the second goal, though the Commission granted the D Block licensee the "exclusive right" to build out the 700 MHz commercial/public safety broadband network (the "Shared Wireless Broadband Network"),[5] it created two exceptions to this policy: (1) public safety entities were permitted to undertake an earlier build-out than would be provided for in the Network Sharing Agreement ("NSA"), with the public safety entities entitled to compensation up to the amount the D Block licensee would have incurred if had it constructed the network itself; and (2) public safety could build their own

[3] *Public Safety and Homeland Security Bureau Seeks Comment on Petitions for Waiver to Deploy 700 MHz Public Safety Broadband Networks*, *Public Notice,* PS Docket No. 06-229, DA 09-1819, ¶ 1 (rel. Aug. 14, 2009) ("*Public Notice*").

[4] *Service Rules for the 698-746, 747-762 and 777-792 MHz Bands*, Report and Order, 22 FCC Rcd 15289 (2007) ("*Second Report & Order*").

[5] *Id.* at ¶ 470.

broadband networks in areas not included in the NSA.[6] Thus, the current early deployment options are premised on D Block licensing and adoption of the NSA. With no D Block licensee and no NSA, and in any event with deployment years away, today there is no clear path for public safety entities in need of broadband solutions.

To that end, the Commission should clarify that jurisdictions may begin early deployments so long as they meet the technical requirements for 700 MHz public safety systems and a commitment is made to facilitate, along with the eventual D Block licensee in its region, migration to the national Public Safety Broadband Network.

Finally, as part of the U.S. Government's stimulus package, Congress has acted to partially address potential funding by adopting a $4.7 billion broadband grant program, the new Broadband Technology Opportunities Program ("BTOP") directs National Telecommunications and Information Administration to issue grants for the purpose of, among others, improving access to, and use of, broadband service by public safety agencies.[7] Consistent with Congressional intent related to public safety and BTOP, the Commission should act to make the necessary spectrum available so that first responders will be able take advantage of public safety broadband services while the Commission and other stakeholders work through the issues remaining to be resolved in the pending 700 MHz rule making proceeding. The simple waiver requested herein will accomplish this.

[6] *Id*. at ¶¶ 471-84.

[7] *See* American Recovery and Reinvestment Act, Pub. L. No. 111-5, § 6001(b)(4) (2009).

II. BACKGROUND

A. A. The Seattle Urban Area (of King, Pierce and Snohomish Counties)

The three-county Region has a population of 3,386,200, or just over one-half the population of Washington State, and an area of 6,013 square miles. The Region is very diverse geographically. All three counties have large urban and suburban areas. Six of Washington State's ten largest cities are located within the Region[8]. The geography ranges from sea level at Puget Sound to the top of the Cascade Mountain range, including Mount Rainier at over 14,000 feet high. There are farming, timber-growing, recreational and forest preserve areas. This geographical diversity presents special challenges to public safety communications.

The Region is prone to natural disasters. Damage from flooding exceeds damage by all other natural hazards in Washington State.[9] Parts of the Region experience significant flooding almost yearly. The presence of recreational/forest preserve areas results in several search and rescue missions each week as well as the need to regularly battle forest fires. More than 1,000 earthquakes occur in Washington each year. A dozen or more are felt, and, although significant damage is rare, major earthquakes of magnitude 8 or larger can occur.[10]

The Region is subject to other homeland security risks due to its proximity to an international border, the presence of two major international trading seaports (Port of Seattle and Port of Tacoma), and the presence of a major international airport, SeaTac. International trade is vital to Washington State; much of this trade flows through Seattle Urban Area ports. Major

[8] *Washington Statewide Communications Interoperability Plan, p. 17.*

[9] *Washington Statewide Communications Interoperability Plan, pp. 24-25.*

[10] *Washington Statewide Communications Interoperability Plan, p. 24. at: http://siec.wa.gov/plan/files/SCIP.pdf*

corporations are headquartered or have massive operations in the Region, including Boeing, Microsoft, Amazon.com, Russell Investments and Starbucks. The Region is home to (or nearby to) a significant military presence, with naval ports in Bremerton and Everett, Fort Lewis, Whidbey Island Naval Air Station and McCord Air Force Base.

All of these assets increase the Region's vulnerability to disasters and terrorist attack and underscore the need for secure, reliable, regional interoperable public safety communications.

B. Public Safety Wireless Communications

The Seattle Urban Area is comprised of King, Pierce and Snohomish Counties in the central Puget Sound area of Washington State. This Region includes the Cities of Seattle, Tacoma, Bellevue and Everett, and the Ports of Seattle and Tacoma.

Jurisdictions in this region operate four compatible Motorola SmartZone Version 4.1 voice radio networks, and conventional VHF public voice radio networks. These jurisdictions have leveraged local tax funds, property levies and grant funds to construct and continuously upgrade these networks. These jurisdictions have linked their networks together, and further interconnected with the public safety networks supporting the Washington State Patrol (WSP) and the Integrated Wireless Network (IWN) which supports multiple Federal law enforcement and emergency management agencies in the Region.

Some jurisdictions have constructed and operate these networks as individual governments. In other cases, these jurisdictions have established joint operating agencies to manage the networks. The cooperating agencies are:

- King County Regional Communications Board, composed of all the local government jurisdictions/agencies within King County, including:
  - City of Seattle
  - Eastside Public Safety Communications Agency (EPSCA)
  - King County government
  - Valley Communications (ValleyCom)
- Metropolitan Emergency Communications System: Cities of Tacoma/Puyallup
- Pierce County
- Port of Seattle
- Snohomish Emergency Radio System (SERS) operating a public safety network throughout Snohomish County
- Washington State Patrol

There are approximately 26,750 radios in use by local and state government responders in the Region.

Recognizing the impending end-of-life of the Motorola SmartZone Version 4.1 systems, and the need for high-speed wireless broadband networking, these cooperating agencies and jurisdictions have established a Radio Executive Policy Committee (REPC) comprised of elected and senior officials of the Seattle Urban Area to address the needs for future Public Safety Communications in the Region.

In summary, the Region is already taking significant steps toward planning, designing, and deploying a Network that avoids foreseeable problems, improves coverage, enhances reliability, improves operability and interoperability, and also makes advanced services, such as broadband data, available to responders throughout the Region.

The City of Seattle will work with these Regional Partners in the design and construction of the initial broadband wireless network which the City will construct for its use if the requested waiver is granted. In this fashion, the network can be extended from its initial deployment inside the City of Seattle for use by other jurisdictions and first responders throughout the Seattle Urban Area.

C. Spectrum Challenges

Despite this high level of public safety challenges and consequent need for spectrum, the Region has less spectrum available for public safety use than do most other areas. This is primarily due to the Region's proximity to Canada. By United States and Canada Sharing Agreement G and FCC rules, the available public safety spectrum must be shared with Canada for all networks operating within 140 kilometers of the Canadian border. This 140 kilometer line encompasses all of Snohomish County and most of King County.

Granting the requested waiver would make sufficient spectrum available for the Region to continue moving toward the deployment of an adequate broadband public safety Network. An adequate Network could be built if the Region could use the 10 MHz of spectrum it is requesting[11], but not without it. Combining this 10 MHz with the existing licensed narrowband spectrum should be a sufficient amount to enable the Region to deploy and use the Network it

[11] Even if the waiver request is granted, the Network could be built more cheaply and be run more efficiently if additional spectrum were available to us. In addition, additional spectrum would make it easier for us to migrate from existing systems to the Network.

needs. Use of the 700MHz public safety broadband spectrum is a critical need for the Region. Therefore, the City of Seattle is seeking this waiver as defined more specifically below.

III. THE CITY OF SEATTLE NEEDS BETTER PUBLIC SAFETY BROADBAND COMMUNICATIONS AND IS PREPARED TO DEVOTE RESOURCES TO DEPLOY AN INTEROPERABLE NETWORK IN THE 700 MHZ BAND.

In the City of Seattle and Seattle Urban Area, there is a dire need for the broadband services that a newly-deployed 700 MHz public safety broadband system would supply:

- The City of Seattle Police and Fire Departments are forced to do without true broadband wireless communications and fund prohibitively high recurring monthly charges for commercial wireless services. Because of the lack of the needed Public Safety oriented broadband wireless connectivity, first responders do not have immediate access to all the data they need to keep the public safe. This information would be readily available to officers in the field if broadband data access was available.

- The City of Seattle's first responders and other first responders in the Seattle Urban Area lack connectivity to wireless broadband service which supports public safety as a priority above all other users, and with the ability to pre-empt other lower priority users during public safety emergencies and disasters. Priority and pre-emption are not available from commercial wireless services.

- The City of Seattle's public safety support services, including its electrical utility, Seattle City Light, its water/wastewater/solid waste utility (Seattle Public Utilities) and the Seattle Transportation Department lack the mobile broadband wireless connectivity necessary to support first responders both during daily emergency incidents but also during the major disasters cited in II-A above.

- With broadband wireless communications resources available to the responders in the City of Seattle:

    - Police officers would know quickly and silently that the vehicle they are stopping is stolen, know that the individual they are interviewing is wanted or dangerous, be able to conduct photo lineups of suspects while still at the crime scene, and be able to access web-enabled surveillance cameras in public facilities to gain intelligence critical to the safe resolution of blockaded or hostage incidents;
    - Firefighters would know which routes were blocked due to construction or accidents, which hydrants are out of service, and what hazardous conditions exist as soon as the data is updated by Police, Water Departments and Building Inspectors;

- Medics would be able to stream patient's vitals and video of the patient to the Emergency Rooms, where the doctors would be able to better and more quickly diagnose and issue orders for treatment while the ambulance is en-route to the hospital; and
- Emergency Managers would be able to receive real-time data and video from incident sites, teleconference with the Incident Commanders, and quickly share critical information, and mobilize essential resources to the ensure the swift and safe resolution of the emergency situation.
- Utility workers could preserve the public safety by quickly restoring electricity, water and transportation services after emergency incidents.
- Work between first responders and the utilities and transportation departments can be quickly and easily coordinated during emergency incidents as these field workers share a common operating picture through maps, video and plans.

The City of Seattle is funded and prepared to deploy a public safety broadband network in the 700 MHz band in the near-term future (*i.e.*, before a shared commercial/public safety network could be established). Deployment of such a network in the City of Seattle will enhance day-to-day, task force and mutual aid response through support of a full spectrum of interoperable IP multi-media applications, including:

- Streaming video (surveillance, remote monitoring)
- Digital Imaging
- Automatic Vehicle Location
- Computer Aided Dispatching
- Email
- Mapping/GIS
- Remote Database Access
- Report Management System Access
- Text Messaging
- Telemetry/Remote Diagnostics
- Web Access
- Computer Aided Design plans access for utility workers
- Hazardous materials information access
- Building plans access for first and second responders

A broadband public safety network in the City of Seattle and the Seattle Urban Area will support applications that currently cannot be supported over existing narrowband or wideband wireless data technologies. Tasks that require the consumption of substantial time to communicate between dispatchers and other officers on narrowband voice systems (*e.g.*,

database lookups and dispatch messaging) could be off-loaded to broadband spectrum, significantly reducing narrowband channel load. In addition, allowing police officers, for example, to have remote access to databases (*e.g.*, Washington State Department of Licensing, warrants, missing persons and stolen vehicle databases, etc.), remote form entry and reporting and web access will enhance public safety by increasing officer efficiency, reducing paperwork and allow officers to spend more of their time on patrol.

Broadband networks will allow mission-critical information to be exchanged in real-time, anytime, anywhere. Distribution of images (floor plans, mug shots, incident stills), videos (surveillance feeds, on-scene video), messaging, access to incident management databases provide a common operating picture and access to information from the field, enhancing both incident response and first responder safety. Finally, broadband networks will allow for the secure, easy and interoperable sharing of information (voice, video and multi-media data) among members of a task force.

To realize these benefits, however, we need the Commission's authorization to operate our own network until it can be integrated into the larger shared network. We believe design could start in 2010, pilot implementations would begin in 2011 and be completed shortly thereafter, depending upon the availability of network equipment and subscriber units. Thus, the public interest would be served if the Commission grants the waiver requested herein, we request that favorable action on this request be taken expeditiously.

IV. THE REQUESTED WAIVER IS IN THE PUBLIC INTEREST AND SHOULD BE GRANTED.

The public interest will be served by allowing the City of Seattle to engage in early deployment. To obtain a waiver of the Commission's rules, a petitioner must demonstrate either

that (1) the underlying purpose of the rule(s) would not be served or would be frustrated by application to the present case, and that a grant of the waiver would be in the public interest, or (2) in view of unique or unusual factual circumstances of the instant case, application of the rule(s) would be inequitable, unduly burdensome, or contrary to the public interest, or the applicant has no reasonable alternative.[12]

Under either of these standards, the requested waiver allowing the City of Seattle to deploy a public safety broadband network in advance of the contemplated Shared Wireless Broadband Network is justified.

A. Grant of the Waiver Will Enable the City of Seattle to Deploy an Interoperable Broadband Network to Serve First Responders, Without Undermining the Commission's 700 MHz Public-Private Partnership.

The tragic events of September 11, 2001 and Hurricane Katrina made clear that public safety entities need more interoperable communications capabilities. Regardless of whether the recently proposed rules may succeed in attracting one or more commercial D Block licensees, the reality is that the deployment of a nationwide network from which local public safety entities can obtain broadband services is likely years away. The City of Seattle is willing to commit resources to bridge this gap so that its first responders can utilize broadband technology to protect life and property immediately.

In Washington, DC, the National Capital Region public safety broadband network demonstrates that public safety entities can make use of this valuable 700 MHz spectrum today in advance of a Public/Private Partnership deployment. The City of Seattle and the Seattle Urban Area should be afforded a similar opportunity.

[12] 47 C.F.R. § 1.925(b)(3). Waiver applicants face a high hurdle and must plead with particularity the facts and circumstances that warrant a waiver. *WAIT Radio v. FCC*, 413 F.2d 1153, 1157 (D.C. Cir. 1969) (*WAIT Radio*), *aff'd,* 459 F.2d 1203 (1973), *cert. denied*, 409 U.S. 1027 (1972).

While we wait for resolution of the Commission's proceeding, the public interest requires that local authorities like the City of Seattle be allowed to deploy their own interoperable, broadband public safety communications networks. In these unique circumstances, waiver of the rules limiting such deployment to the Upper 700 MHz D Block licensee will serve the public interest.

B. The Network Will Be Robust and Will Satisfy All of the Technical Specifications Proposed by the Commission in the *Third Further Notice*.

The City of Seattle believes, along with the groups and agencies cited in section I above, that the selection of LTE as the common air interface technology for use in the public safety 700 MHz band is probably the first step to achieving the goal of nationwide interoperability. The City of Seattle is planning deployment of a LTE network to support public safety operations. This LTE system will be deployed to operate on a paired assignment of 5 MHz wide channels in the public safety broadband block between 793-798 MHz for mobile transmission and 763-768 MHz for base station transmission. The equipment operating band will be compliant with Band Class 14 as specified in the 3GPP standards. LTE is a commercial open standard technology which will be deployed by commercial wireless operators in the commercial portions of the 700 MHz band in early 2010.

LTE deployed in the Public Safety Broadband Block would meet the technical specifications proposed by the Commission in its *Third Further Notice,* as well as the NPSTC recommended requirements identified in the NPSTC Recommendations.[13] In particular:

- *Capacity, Throughput, and Quality of Service*. With user peak data rates of 31.7 Mbps (downlink) and 9.1 Mbps (uplink) when deployed on 2x5 MHz channels and quality of service support for real-time and non-real-time IP-based applications, LTE will support all the applications listed in Table 1 of proposed Section 27.1305 of the Commission's rules. Networks will be designed with effective cell edge data rates

[13] *See* NPSTC Recommendations *supra* at 2.

exceeding those listed in Table 2 of proposed Section 27.1305. In addition, the systems will provide QoS mechanisms and priority levels consistent with LTE standards.

- *Security and Encryption*. LTE is highly secure in view of its use of a variety of robust authorization and authentication mechanisms employing standard encryption techniques for both media and signaling traffic. IPSec is supported. The system will comply with commercial best practices.

- *Availability, Robustness, and Hardening*. Public Safety LTE networks will be designed for robustness and reliability. Using LTE, public safety networks exceeding 99.6% availability metric excluding radio signal coverage and scheduled maintenance downtime can be deployed. Furthermore, network equipment can be deployed at existing public safety Land Mobile Radio sites, which have been typically hardened to meet the needs of mission-critical public safety communications.

Over the past several months, public safety, equipment manufacturers and commercial wireless service providers under the auspices of the NPSTC's Broadband Task Force have worked to develop minimum recommendations for LTE-based systems, to ensure roaming and interoperability among the Petitioners who plan to build ahead of the national network. The City of Seattle supports the NPSTC Broadband Task Force recommendations as they are useful guidelines for achieving roaming and interoperability and will build its planned network to these recommendations.[14]

[14] *See Id.* at 2. In developing its set of technical recommendations, the task force took into account the roaming scenarios that would be encountered by state and local jurisdictions seeking to deploy 700 MHz LTE systems via a waiver, including: roaming between 700 MHz public safety LTE networks, roaming between private 700 MHz public safety LTE and D block shared LTE network, roaming between 700 MHz public safety LTE networks to commercial 700 MHz LTE networks, and roaming between 700 MHz public safety LTE networks to commercial and private broadband networks (3GPP and non-3GPP) in other bands.

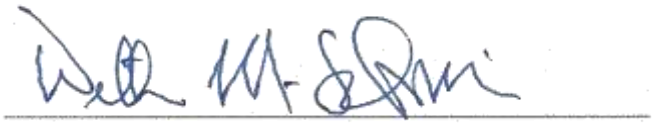
The NPSTC Recommendations provide a sound set of requirements and technical implementation guidelines to support interoperability among public safety agencies deploying LTE-based systems via a waiver. The technical implementation guidelines take into account the evolution of LTE technology, as well as public safety users' immediate-term application needs. The report's proposed recommendation for a public safety broadband roaming exchange is a sensible and pragmatic approach to support inter-regional roaming.

Nevertheless, the City of Seattle will work with the PSST and other cities, counties or regions who are granted similar waivers to choose compatible technologies to achieve the FCC's goal of a national interoperability.

V. CONCLUSION

The Commission would significantly advance the cause of public safety by allowing the City of Seattle and the Seattle Urban Area to deploy our own public safety broadband network that would operate until a Shared Wireless Broadband Network can be established. The City of Seattle stands ready to begin deployment of life-saving broadband services, and respectfully requests that the Commission promptly allow it to begin by granting the waiver as requested herein.

Respectfully submitted,



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